

V. REMARKS

Entry of the Amendment is proper under 37 C.F.R. §1.116 because the Amendment: a) places the application in condition for allowance for the reasons discussed herein; b) does not raise any new issue requiring further search and/or consideration because the Amendment amplifies issues previously discussed throughout prosecution; c) does not present any additional claims without canceling a corresponding number of finally rejected claims; and d) places the application in better form for appeal, should an Appeal be necessary. The Amendment is necessary and was not earlier presented because it is made in response to arguments raised in the final rejection. The amendments to the subject claims do not incorporate any new subject matter into the claims. Thus, entry of the Amendment is respectfully requested.

The Examiner did not consider the foreign patent documents that were filed with an Information Disclosure Statement on January 14, 2005, because the IDS did not include a concise explanation of the relevance of these references. A concise statement of relevance along with an English-language translation of each of the foreign patent documents is filed herewith for the Examiner's consideration thereof.

Claims 1-4 and 14 are objected to because of an informality. The claims are amended to obviate the objection. Withdrawal of the objection is respectfully requested.

Claim 1 is rejected under 35 U.S.C. 103(a) as unpatentable over Japanese Patent Application Publications 06-275543 to Okamoto et al. in view of U.S. Patent No. 6,468,387 to Ahn. The rejection is respectfully traversed.

Okamoto teaches a plasma generating device. An intermediate electrode 5 surrounds the periphery of a plasma space formed between a high-frequency electrode 4 and a grounded electrode 2 with a metal plate. The frequency and phase of the voltage applied across the intermediate electrode 5 from a high-frequency power source 51 are made coincident with the frequency and phase of the voltage applied across the electrode 4.

Ahn teaches an apparatus for generating an electromagnetic field in a processing chamber with the processing chamber having a ceiling, a floor, and a sidewall therebetween. The apparatus includes first, second, third and fourth electrodes, a power supply and a bias generator. The first electrode is opposite the second electrode and the third electrode is opposite the fourth electrode. The first, second, third, and fourth electrodes are equally spaced about the sidewall of the processing chamber. The power supply is configured to supply a first signal having a first amplitude to the first electrode and a second signal having a second amplitude to the third electrode. The first amplitude does not equal the second amplitude. The bias generator is configured to supply a voltage to a wafer holder within the processing chamber.

Claim 1, as amended, is directed to an apparatus for forming a thin film. Claim 1 recites that a film-forming gas is supplied from a gas supplying device to a vacuum container which can be evacuated by an exhausting device to reduce gas pressure in the container and an electric power is applied from a power applying device to the film-forming gas to produce plasma from the gas in which a thin film is formed on an article to be film-covered disposed on a supporting member in the vacuum container. Claim 1 also recites that the gas supplying device includes a gas supply member having a gas supply surface portion with the gas supply surface portion being opposed to a film-forming surface of the article to be film-covered disposed on the supporting member in the vacuum container. Further, claim 1 recites that the power applying device includes a power applying electrode connected to a power source for forming the plasma and disposed in the vacuum container with the gas supply member being disposed in the vacuum container without connection to the power source and having a plurality of gas supply holes dispersedly formed at the gas supply surface portion. Additionally, claim 1 recites that the supporting member is grounded and the power applying electrode is disposed in a surrounding region around a space between the article to be film-covered disposed on the supporting member in the vacuum container and the gas supply surface portion of the gas supply member opposed to the article. Furthermore, claim 1 recites

that the plurality of gas supply holes includes a first set of gas supply holes arranged in a matrix of columns and rows and a second set of gas supply holes arranged in a pattern superimposed on the matrix with the first and second set of gas supply holes being in fluidic independence of each other.

It is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests the features of claim 1 as amended. Specifically, it is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests a plurality of gas supply holes that includes a first set of gas supply holes arranged in a matrix of columns and rows and a second set of gas supply holes arranged in a pattern superimposed on the matrix with the first and second set of gas supply holes being in fluidic independence of each other. Thus, it is respectfully submitted that one of ordinary skill in the art would not be motivated to combine the features of the applied art because such combination would not result in the claimed invention. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Withdrawal of the rejection is respectfully requested.

Claim 2 is rejected under 35 U.S.C. 103(a) as unpatentable over Okamoto in view of Ahn as applied to claim 1 and further in view of U.S. Patent No: 5,422,139 to Fischer. The rejection is respectfully traversed.

Fischer discloses a method for treating a surface by reactive process. Several gas inlet openings are formed into a reactor vessel. Several gas retrieving openings are provided from the reactor vessel. The gas inlet and gas retrieving openings are arranged neighboring each other and distributed along a surface opposite the surface to be treated. Each of the openings has central axes directed substantially perpendicular to the surface to be treated and each gas inlet opening is associated with a gas retrieving opening to define a pair of openings. A gas mixture having a reactive gas is fed to the gas inlet openings for injecting the gas towards the surface to be treated. Gas having reaction products resulting from a reactive treatment of the surface to be treated is withdrawn out of the reactor vessel through the gas retrieving openings. An effect of a treatment on an area being treated by a given pair of openings is controlled by adjusting

one of a group of variables. Such variables include selecting, as a first variable, a distance between a gas inlet opening and a gas retrieving opening forming an opening pair, and selecting, as a second variable, a distance of the opening pair to an area of the surface to be treated opposite the pair, and selecting as a third and a fourth variable, a gas injecting rate and a gas withdrawing rate, respectively. An adjustment of at least one of the variables results in a variation of a treatment effect by reactive process of the surface being treated at the area, which variation is larger than variations of a treatment effect of a surface being treated occurring at surface areas adjacent the area disposed opposite the given pair of openings which variations result from the adjustment.

It is respectfully submitted that claim 1 is allowable over Okamoto in view of Ahn as discussed above. Further, it is respectfully submitted that the Fischer fails to cure the deficiencies of Okamoto and Ahn. As a result, it is respectfully submitted that claim 1 is allowable over the combination of Okamoto, Ahn and Fischer.

Claim 2 depends from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that claim 2 is allowable at least for the reason claim 1 is allowable as well as for the features it recites.

Withdrawal of the rejection is respectfully requested.

Claim 3 is rejected under 35 U.S.C. 103(a) as unpatentable over Okamoto in view of Ahn as applied to claim 1 and further in view of U.S. Patent No: 5,404,079 to Ohkuni and U.S. Patent No: 6,099,687 to Yamazaki. The rejection is respectfully traversed.

Ohkuni teaches a plasma generating apparatus that includes a vacuum chamber, a plasma generator and ion extractor. The plasma generator includes N first electrodes (N is an integer not less than 2) disposed at roughly regular intervals in the vacuum chamber and a first high-frequency power supply for supplying the first electrodes in the order of their arrangement with high-frequency electric powers. Each has a first frequency but differs in phase by $(360/N)$ degrees, so as to generate, by means of a rotating electric field formed by the first electrodes, a highly-dense plasma in a plasma generating part

surrounded by the first electrodes. The ion extractor includes a second electrode, an earth electrode. Both the second and the earth electrode are disposed in the vacuum chamber. A second high-frequency power supply supplies the second electrode with high-frequency electric power having a second frequency so as to extract ions from the plasma which has been generated in the plasma generating part. The earth electrode is placed in such a position that an electric field formed between the earth electrode and the second electrode does not interfere with the rotating electric field formed by the first electrodes.

Yamazaki discloses an etching system for plasma-etching a thin film over an insulating substrate of more than 8 inches in diameter or forming a rectangle having a size of 200 mm or more on each side thereof. The etching system includes an agitating electric field system and an agitating magnetic field system beside an etching power source. The agitating electric field system has agitating electrodes disposed around a plasma reaction space so as to be able to apply an electric field in parallel to a surface of the insulating substrate and agitating power sources connected to the agitating electrodes via amplifiers. The agitating magnetic field system has agitating magnets disposed around the plasma reaction space so as to be able to apply a magnetic field in parallel to the surface of the insulating substrate.

It is respectfully submitted that claim 1 is allowable over Okamoto in view of Ahn as discussed above. Further, it is respectfully submitted that Ohkuni and Yamazaki fail to cure the deficiencies of Okamoto and Ahn. As a result, it is respectfully submitted that claim 1 is allowable over the combination of Okamoto, Ahn, Ohkuni and Yamazaki.

Claim 3 depends from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that claim 3 is allowable at least for the reason claim 1 is allowable as well as for the features it recites.

Withdrawal of the rejection is respectfully requested.

Claim 4 is rejected under 35 U.S.C. 103(a) as unpatentable over Okamoto in view of Ahn as applied to claim 1 and further in view of Japanese Patent

Application Publications 2001-189308 to Fujita et al. The rejection is respectfully traversed.

Fujita teaches a parallel plate plasma treatment device. A number of reaction gas supplying nozzles are attached to an upper electrode per unit area and can be changed in the plane of a wafer. As such, the in-plane uniformity of the film forming speed is improved by concentrically introducing the film-forming gas to an area where the film forming speed is slow.

It is respectfully submitted that claim 1 is allowable over Okamoto in view of Ahn as discussed above. Further, it is respectfully submitted that Fujita fails to cure the deficiencies of Okamoto and Ahn. As a result, it is respectfully submitted that claim 1 is allowable over the combination of Okamoto, Ahn and Fujita.

Claim 4 depends from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that claim 4 is allowable at least for the reason claim 1 is allowable as well as for the features it recites.

Withdrawal of the rejection is respectfully requested.

Claim 14 is rejected under 35 U.S.C. 103(a) as unpatentable over Okamoto in view of Ahn as applied to claim 1 and further in view of U.S. Patent No. 5,958,140 to Arami et al. The rejection is respectfully traversed.

Arami is directed to an apparatus for heat-processing target objects one by one to from a film thereon and includes a processing vessel for accommodating a target object, a susceptor, a shower head section, processing gas supply device, a plurality of gas injection holes and a heater. The susceptor is arranged in the processing vessel and has a support surface for placing the target object. The shower head section is spaced apart from the support surface. The processing gas supply device supplies a processing gas to the shower head section. The plurality of gas injection holes are formed on a face of the shower head section which faces the susceptor. The gas injection holes are arranged in a region defined as a gas injection region having a plan-view outer contour. The heater is attached to the susceptor for heating the susceptor. The heater has an inner heater arranged on the susceptor to face the support surface with a body of

the susceptor sandwiched therebetween, and an outer heater is arranged on a side wall of the susceptor to surround the side wall. The outer heater has a plan-view outer contour which defines a plan-view outer contour of a gas reaction region to be heated to at least a temperature at which the processing gas starts reaction. The plan-view outer contours of the gas injection region and the gas reaction region are substantially the same in shape as each other and substantially concentric with each other.

Claim 14 is canceled and therefore the rejection as applied thereto is now moot.

Withdrawal of the rejection is respectfully requested.

Newly-added claim 15 also includes features not shown in the applied art.

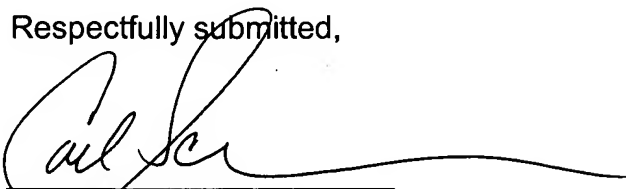
In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

Respectfully submitted,

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Enclosure(s): Amendment Transmittal
Four (4) Concise Statements of Relevance
Four (4) English-language translations of prior art references

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